AMENDMENTS TO THE CLAIMS

Please amend claims 1, 9 and 12 and add new claims 20-25, as set forth in the following listing of claims, which will replace all prior versions, and listings, of claims in the present application.

Listing of Claims

1. (Currently Amended) A warming-up apparatus for a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank for storing ~~compressed~~ hydrogen gas that can be discharged at a pressure of about 25 MPa ~~at a pressure of at least about 1 MPa at a temperature of about 35° Celsius~~;

(b) a hydrogen-occlusion alloy tank having a hydrogen-occlusion alloy accommodated therein;

(c) hydrogen-transferring means which transfers hydrogen discharged from said high-pressure tank to the hydrogen-occlusion alloy in said hydrogen-occlusion alloy tank; and

(d) heat-transmitting means which transmits the heat generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said hydrogen-transferring means into said hydrogen-occlusion alloy tank to the fuel cell.

2. (Original) The warming-up apparatus according to Claim 1, which further comprises a water cooling system which discharges out the heat generated at the time of the power generation in the fuel cell, and wherein said heat-transmitting means transmits the heat generated in the hydrogen-occlusion alloy to cooling water of said water cooling system to heat the fuel cell via the cooling water.

3. (Original) The warming-up apparatus according to Claim 2, wherein said heat-transmitting means is actuated when the temperature of said cooling water is not more than a prescribed temperature.

4. (Original) The warming-up apparatus according to Claim 1, which further comprises hydrogen-discharging means to discharge the hydrogen having been occluded in said hydrogen-

occlusion alloy out of the hydrogen-occlusion alloy tank in order to use the hydrogen for the power generation in the fuel cell.

5. (Original) The warming-up apparatus according to Claim 4, wherein said hydrogen-discharging means discharges the hydrogen having been occluded in said hydrogen-occlusion alloy depending upon the warming-up condition of the fuel cell.

6. (Original) The warming-up apparatus according to Claim 4, wherein said hydrogen-discharging means discharges the hydrogen having been occluded in said hydrogen-occlusion alloy depending upon the gas pressure of the anode of the fuel cell.

7. (Original) The warming-up apparatus according to Claim 4, wherein said hydrogen-discharging means discharges the hydrogen having been occluded in said hydrogen-occlusion alloy depending upon the hydrogen consumption amount consumed by the fuel cell.

8. (Original) The warming-up apparatus according to Claim 1, wherein the power generation in the fuel cell is started by supplying the hydrogen from the high-pressure tank after the actuation of the heat-transmitting means.

9. (Currently Amended) A process for warming-up a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises the following steps:

(A) a step for storing hydrogen from a high-pressure tank, which stores ~~compressed~~ hydrogen gas at a pressure of at least about ~~1~~ 25 MPa ~~at a temperature of about 35° Celsius~~, in the hydrogen-occlusion alloy within a hydrogen-occlusion alloy tank; and

(B) a step for transmitting the heat generated at the time of storing the hydrogen in the hydrogen-occlusion alloy to the fuel cell.

10. (Original) The process according to Claim 9, which further comprises step (C) for supplying the hydrogen to the fuel cell from said high-pressure tank to generate the power after heating the fuel cell.

11. (Original) The process according to Claim 9, which further comprises step (D) for monitoring the temperature of the fuel cell, and step (E) for repeating steps (A) and (B) to heat the fuel cell, when the monitored temperature is less than a prescribed temperature, and step (F) for repeating steps (A) and (B) to heat the fuel cell and for supplying the hydrogen from said high-pressure tank to the fuel cell to start the power generation, when the monitored temperature is not less than a prescribed temperature.

12. (Currently Amended) A mechanism for warming-up a fuel cell, having a configuration of warming-up the fuel cell by a heat generated during the occlusion of hydrogen in a hydrogen-occlusion alloy, wherein cooling water for cooling the fuel cell passes outside of a tank containing the hydrogen-occlusion alloy and is heated by the heat generated for warming-up the fuel cell, and wherein the mechanism includes a hydrogen-discharge means for discharging hydrogen having been occluded in the hydrogen-occlusion alloy and supplying the discharged hydrogen to the fuel cell as fuel.

13. Canceled

14. (Original) The mechanism for warming-up a fuel cell according to Claim 12, which has a configuration that when the temperature of the fuel cell is not higher than a prescribed temperature, said heat is generated to warm-up the fuel cell.

15. (Original) The mechanism for warming-up a fuel cell according to Claim 12, which has a configuration that the hydrogen having been occluded in the hydrogen-occlusion alloy is supplied to the fuel cell as fuel.

16. (Previously Presented) The mechanism for warming-up a fuel cell according to Claim 15, wherein said hydrogen is supplied to the fuel cell depending upon a target pressure of the anode of the fuel cell.

17. (Previously Presented) The mechanism for warming-up a fuel cell according to Claim 15, wherein said hydrogen is supplied to the fuel cell depending upon a target power generation for the fuel cell.

18. (Original) The mechanism for warming-up a fuel cell according to Claim 12, wherein the fuel cell starts the power generation after the warming-up.

19. (Original) The mechanism for warming-up a fuel cell according to Claim 14, wherein the fuel cell generates power while warming-up the fuel cell when the temperature of the fuel cell is within a given temperature range, whose upper limit is said prescribed temperature, and the warming-up is performed with no power generation when the temperature of the fuel cell is under the lower limit of said given temperature range.

20. (New) A warming-up apparatus for a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank for storing hydrogen gas;

(b) a hydrogen-occlusion alloy tank having a hydrogen-occlusion alloy accommodated therein;

(c) a branched pipe connecting the high-pressure tank to the hydrogen-occlusion alloy tank and the fuel cell, the branched pipe including a first branch for transferring hydrogen discharged from said high-pressure tank to the hydrogen-occlusion alloy in said hydrogen-occlusion alloy tank and a second branch for transferring hydrogen discharged from said high-pressure tank to the fuel cell; and

(d) heat-transmitting means which transmits heat from the hydrogen-occlusion alloy tank to the fuel cell, wherein the heat is generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said first branch of the branched pipe into said hydrogen-occlusion alloy tank.

21. (New) A warming-up apparatus for a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank for storing hydrogen gas;

(b) a hydrogen-occlusion alloy tank having a hydrogen-occlusion alloy accommodated therein;

(c) a three-way valve for switching between a stationary position, in which hydrogen discharged from the high-pressure tank is directed towards the fuel cell, and a warming-up position, in which hydrogen discharged from the high-pressure tank is directed towards the hydrogen-occlusion alloy tank; and

(d) heat-transmitting means which transmits heat from the hydrogen-occlusion alloy tank to the fuel cell, wherein the heat is generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said three-way valve in said warming-up position into said hydrogen-occlusion alloy tank.

22. (New) A warming-up apparatus for a fuel cell in an electric vehicle, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank disposed on-board the vehicle for storing hydrogen gas;

(b) a hydrogen-occlusion alloy tank disposed on-board the vehicle having a hydrogen-occlusion alloy accommodated therein;

(c) hydrogen-transferring means disposed on-board the vehicle which transfers hydrogen discharged from said high-pressure tank to the hydrogen-occlusion alloy in said hydrogen-occlusion alloy tank; and

(d) heat-transmitting means disposed on-board the vehicle which transmits the heat generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said hydrogen-transferring means into said hydrogen-occlusion alloy tank to the fuel cell.

23. (New) The warming-up apparatus of claim 22, wherein the high-pressure tank and the hydrogen-occlusion alloy tank are crosswise placed on upper portions of rear wheels of the vehicle.

24. (New) A warming-up apparatus for a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank formed of a fiber reinforced plastic for storing hydrogen gas;

(b) a hydrogen-occlusion alloy tank having a hydrogen-occlusion alloy accommodated therein;

(c) hydrogen-transferring means which transfers hydrogen discharged from said high-pressure tank to the hydrogen-occlusion alloy in said hydrogen-occlusion alloy tank; and

(d) heat-transmitting means which transmits the heat generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said hydrogen-transferring means into said hydrogen-occlusion alloy tank to the fuel cell.

25. (New) A warming-up apparatus for a fuel cell, which generates power due to an electrochemical reaction between hydrogen gas, which is fuel, and oxygen gas, which is an oxidant, which comprises:

(a) a high-pressure tank for storing hydrogen gas;

(b) a hydrogen-occlusion alloy tank formed of an aluminum alloy and having a hydrogen-occlusion alloy accommodated therein, wherein the aluminum alloy of the hydrogen-occlusion alloy tank has a higher heat conductivity than the high-pressure tank;

(c) hydrogen-transferring means which transfers hydrogen discharged from said high-pressure tank to the hydrogen-occlusion alloy in said hydrogen-occlusion alloy tank; and

(d) heat-transmitting means which transmits the heat generated in the hydrogen-occlusion alloy during the course of storing the hydrogen gas transferred by said hydrogen-transferring means into said hydrogen-occlusion alloy tank to the fuel cell.